New Undergraduate Course Approval Cover Form
Montana State University

This four-page form collects basic information about the proposed new course, provides information on the approval process, and includes all required approvals. Additional information (see INFO sheet) is also required as part of the New Course Packet.

Proposed New Course Information

Requested Rubric, Course Number, Core Designation (if needed): BIOE 410 RH

Course Title: Insect Ecology
Abbreviated Course Title: Spring 2015
First Semester to be Offered: Robert K. D. Peterson
Submitted by: x7927 bpetersen@montana.edu
Submitter’s Contact Info: Phone, Email:
Instructor: Robert K. D. Peterson
Department: Land Resources & Environmental Sciences
College: Agriculture

New Course Review Process

Instructor completes the New Course Packet, with Core information if a Core designation is requested.
Instructor checks for "equivalent" course in the MUS system and recommends a common or unique course number.

Department Head’s signature indicates that course has been approved by the process used within the Department.
The Chair of the College Curriculum Committee signs to indicate College academic approval.
The College Dean signs to indicate that adequate resources are available to offer the course, Supporting information (Dean’s Statement) is typically required.

The New Course Packet (as PDF) is uploaded to the Provost’s Office server for distribution to other committees.
Course requests are sent to Curriculum and Program Committee (CPC). Core reviews are sent to appropriate Core subcommittee. Committees work in parallel when possible to speed approval process. Special topics courses (291,491) skip the CPC review (limited to two years.)
Provost’s Office reviews the new course request. New courses are submitted to MUS for Common Course Number (CCN) review. Dean and Department informed upon approval.

Approved new course sent to Registrar for inclusion in the Catalog and Schedule of Classes

APPROVALS

Robert K.
D. Peterson

Submitter
Tracy M.
Sterling

Department Head

Chair, College Curriculum Comm.

Dean

Chair, Core Subcommittee (if app.)

Assoc. Provost

Note: This diagram illustrates the typical flow path, but at any review step there can be a request for additional information or modifications. Careful review in early steps is the best way to speed the overall process. * Special topics courses (x91) require fewer signatures, but cannot be offered more than two times without committee review.
INFORMATION NEEDED FOR COMMON COURSE NUMBERING

The process for identifying a common course number for a new course is as follows:

1. Course learning outcomes are prepared for the new course.
2. The person submitting the new course request looks at the CCN website to see if a course with similar outcomes already exists in the MUS system.
   
   www.mus.edu/Qtools/CCN/ccn_default.asp

   • If a course exists with at least 80% of the same outcomes, the course is considered "equivalent" to the proposed new course, and the new course should use the existing rubric and course number.
   • If no "equivalent" course is found, the person submitting the new course request should identify a unique course number that has not been used by any other course in the MUS system.
3. The requested rubric and course number are submitted as part of the new course packet.
4. The Provost's Office submits the learning outcomes and the requested rubric and course number to the MUS to have a course number assigned to the course. (This will typically be the requested course number, but it could be changed.)
5. The assigned common course number is reported back to the person submitting the new course request.

BIOE 410
Insect Ecology

Abbrev. Course Title (≤ 30 char):
Insect Ecology

Credits:
3

Department Offering Course:
Land Resources & Environmental Sciences

College:
Agriculture

Is this course "equivalent" to a course in the MUS System?: □ Yes ✔ No

Learning Outcomes for the Course:

Students will be able to:

- Understand the differences between the ecology of vertebrates and invertebrates.
- Understand how abiotic environmental factors affect the physiological ecology of insects.
- Identify the major conceptual and practical approaches to characterizing the population ecology of insects.
- Identify the major conceptual and practical approaches to characterizing the community and ecosystem ecology of insects.
- Evaluate objectively the scientific weight of evidence for ecological issues related to insects.
DEAN'S STATEMENT

The reviewing committees are being asked to take a closer look at the resources required for each proposed new course. In many cases new courses will replace existing courses and the new course request is effectively resource neutral, however that is not always the case. For example, a new elective course that would result in distributing an existing student population across a larger number of courses would represent a significant increase in expenditures for the new course, and no increase in total student credit hours. A funding mechanism for such a course would need to be identified. The Dean’s Statement is the place to document how the costs of the proposed new course will be covered.

No new resources or expected impacts on any courses.

NCS
4.22.14
INFORMATION REQUIRED BY THE REGISTRAR

The data needed to enter the new course into the MSU Catalog and Schedule of Classes is collected on this page. Once the new course has been approved, this page is automatically forwarded to the Registrar for data entry.

<table>
<thead>
<tr>
<th>Assigned Rubric, Course Number, Core Designation (if needed):</th>
<th>BIOE 410</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Title (for Catalog): Insect Ecology</td>
<td>Land Resources &amp; Environmental Sciences</td>
</tr>
<tr>
<td>Course Title (for Schedule of Classes, 30 characters, max.): Insect Ecology</td>
<td>Agriculture</td>
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<tr>
<td>First Semester to be Offered:</td>
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<tr>
<td>Restricted Entry/Consent of Instructor Required: Yes</td>
<td></td>
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<tr>
<td>Instructor’s GID (last 4 digits only): 6794</td>
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<tr>
<td>Department Offering Course:</td>
<td></td>
</tr>
<tr>
<td>College:</td>
<td></td>
</tr>
</tbody>
</table>

Is the requested course number available? (x4155 to check): Yes

Frequency of course offering: Alternate Years, starting 2015

Semester(s) offered (check all that apply): Spring

Summer Options (check all that apply): First 6 weeks

Credits by mode of instruction: Lecture: 3

| Independent Study: | |
| Lab/Studio: | |
| Recitation/Discussion: | |

TOTAL CREDITS: 3

Primary Mode(s) of Delivery: Face-to-face

Time and Location — Call the Registrar’s Office at x4155 to find a time and location for the course.

| Assigned Day(s): | M, Tu, W, Th |
| Assigned Time(s): | 1050-1205 |
| Assigned Building: | GH |
| Assigned Room: | 144 |
| Capacity (room capacity, or enrollment “cap”): | 15 |

Co- and Pre-Requisites — Courses numbered 200 and above are normally expected to have prerequisites. When listing multiple prerequisites, please separate courses with "and" if both are required, or “or” if only one is required.

| Prerequisite(s): | BIOE 262 |
| Co-Requisite(s): | |

Course Description — Provide a course description of 40 words or less for the MSU Catalog.

New Undergraduate Course Narrative
Montana State University
Updated August 23, 2012

Please provide the following information in narrative format. Substantive responses to all criteria are required. Although not required, a draft syllabus can also be helpful to the committee in understanding the details of the proposed course.

General Course Information
1. Requested Rubric, Course Number, and Core Designation (if any)
   > BIOE 410
2. Course Title
   > Insect Ecology
3. Provide a general description of the course explaining the need for the course, its goals, and its overall structure. This is the most important part of the application and should offer a good sense of what students will experience by taking this class.
   > This is a co-convene course application. The current course, Insect Ecology, ENTO 510, has been taught for many years at MSU. I have been teaching it at MSU since 2003. By allowing qualified undergraduates to take the course, it can be offered to additional interested students. In particular, it can be offered as part of a new choice block for Environmental Science majors in the Environmental Biology concentration who can choose between Microbial Ecology, Plant Ecology, and Insect Ecology. This is the primary reason for submitting this application.

The course covers the physiological, population, and community ecology of insects and related invertebrates. Specific topics include insect size, scaling, and ecological consequences, the Influence of biotic and abiotic factors on insect population and community dynamics, seasonal adaptations, dispersion, life table analysis, r- and k-selection, ecological methods, and insect-plant interactions. Case studies include examples based on the professional and research interests of students.

The course goal is to give students a theoretical and working knowledge of the ecology of insects.

Course activities include lecture, discussion, text and literature readings, written assignments, problem sets, and exams.

Learning Outcomes:
Students will be able to:
- Understand the differences between the ecology of vertebrates and invertebrates.
- Understand how abiotic environmental factors affect the physiological ecology of insects.
- Identify the major conceptual and practical approaches to characterizing the population ecology of insects.
- Identify the major conceptual and practical approaches to characterizing the community
and ecosystem ecology of insects.
• Evaluate objectively the scientific weight of evidence for ecological issues related to insects.

4. Based on what types of student work (e.g., tests, homework assignments, papers, performances, etc.) will grades be determined?

> Grades will be determined based on brief writing assignments, problem sets, exams, and participation. There is an additional requirement of a term paper and presentation for graduate students in ENTO 510.

5. Provide a course content outline containing all major topics plus a brief description of the material to be covered under each major topic heading.

> See attached syllabus.

6. List required texts or other required references.


7. What are the estimated enrollment and student credit hour (SCH) production?

[SCH = (enrollment * credits)]

> Enrollment in BIOE 410 will not be large. The prerequisite for the course is BIOO 262, which will preclude large enrollment in BIOE 410. The purpose of this co-convene course application is to provide interested undergraduates, primarily in Environmental Science, with an additional course option to satisfy a new choice block for the Environmental Biology concentration.

The estimated SCH will be 9-15 per offering. These will be added to the approximately 15-27 graduate SCH for ENTO 510.

8. Will there be an enrollment cap that restricts enrollment below the level of student demand? If so, what is the enrollment cap and why is it necessary?

> The current enrollment cap of 15 for ENTO 510 should not need to be adjusted to accommodate BIOE 410 students.

9. Will course be a “restricted enrollment” course? If so, why is restricted enrollment necessary?

> No.

10. Describe how the success of the course will be evaluated? (“End-of-semester student evaluations” is not the answer to this question. How will the instructor determine if the learning outcomes are being met, and how will the department determine if the course is fulfilling its intended purpose?)

> In addition to graded items and a final grade, students will be surveyed at the end of the semester for how well they achieved the learning outcomes. My understanding is that my department’s undergraduate curriculum committee currently is discussing potential procedures for determining
if learning outcomes are being met. Therefore, my activities for BIOE 410 will be dependent on those procedures.

11. Is the instructor a member of the regular faculty (i.e., tenured or tenure-track)? If no, please describe the instructor's qualifications, attach a Vita, and provide a separate letter of support, signed by the department head (or appropriate unit director), addressing the instructor’s qualifications to teach this course.

> Yes.

**Level of Offering**

12. Has the course been offered previously under 280/291 or 480/491? If so, when? Under what number? What was the enrollment? What level of students took the course?

> It is offered as ENTO 510 only for graduate students. It has not been offered for undergraduates.

13. Justify the level of course offering.

> It will be co-convened with ENTO 510. The prerequisite is BIO 262. Therefore, BIOE 410 needs to be a 400-level course.

**Relationship to other Courses, Curricula, and Departments**

14. Does this course build on or interrelate with other courses in your curriculum or related curricula? If so, which ones?

> The course builds on BIO 262 (Introduction to Entomology). In addition, BIOE 410 is interrelated with AGSC 401 (Integrated Pest Management) and undergraduate courses in ecology.

15. Do the topics in the proposed course duplicate or reiterate those in other courses in this or any other department? If so, how do the coverage and educational experience differ and how is this duplication or reiteration justified? Also, what liaison (which is expected in cases of apparent overlap) has been conducted with other departments? Report reactions, both favorable and unfavorable.

> The specific topics only duplicate those in ENTO 510, the co-convened course.

16. What programs (departments, colleges) will be impacted by the SCH production of this course? That is, where do you think the SCH in the proposed course are likely to come from? If the expected SCH production of the proposed course is greater than 1000, and the SCH are expected to come from other colleges, what steps have been taken to make the other units aware of the potential loss of SCH? Report reactions, both favorable and unfavorable.

> None.

17. If this proposed course has a significant interdisciplinary component, please explain briefly. Otherwise, indicate n/a.

> n/a.
Students Served
18. Does the proposed course serve majors only? Non-majors only? Both majors and non-majors? What other majors might be interested in this course? State areas or disciplines to be served and indicate the specific efforts that will be made to make the course material relevant to all disciplines served.

> The course will serve Environmental Science majors in the Environmental Biology concentration. However, it also can serve other Environmental Science majors, as well as the following majors: Animal Science, Biotechnology, Environmental Horticulture, Range Ecology & Management, Plant Science, Sustainable Food & Bioenergy Systems, and Biological Sciences. The course is relevant to many disciplines because topics in the course include physiological ecology, population ecology, community ecology, ecosystem ecology, and applied ecology.

Resources
19. What additional resources (e.g., additional instructional FTE, required technologies), if any, will be required to offer this course? Are there any resource issues for the students who will take the course (e.g., required technologies, travel, on-line access requirements)? Will there be an additional fee charged to students taking this course? Please explain.

> None.

20. What existing information resources – print (books, journals, documents), audiovisual (videos, DVDs, CDs or other), and/or electronic (e-books, databases, electronic journals and web sites) – provided by the MSU Libraries will be used by students in this course? Provide examples as well as descriptive information. If additional information resources are necessary, please discuss those acquisitions with the library (x6549 Collection Development) at least three months prior to the beginning of the semester in which this course will be taught.

> Readings from the primary science literature will be given to the students via D2L in the form of pdf documents.

Other Supporting Material
21. Include any additional information you feel is needed to support this request.

> See attached syllabus.
Insect Ecology
BIOE 410, ENTO 510
Spring 2015

 Updated: March 11, 2014

SYLLABUS

TITLE: Insect Ecology (ENTO 510)

INSTRUCTOR: Bob Peterson
222 Linfield Hall
994-7927
bpeterson@montana.edu

COURSE OFFICE HOURS: Immediately after class, or by appointment

CREDIT: 3 cr. (lecture)
TERM: Spring semester 2013
TIME: T Th, 10:50 - 12:05
LOCATION: Gaines Hall 144
COURSE WEB SITE: D2L

Description:
The course covers the physiological, population, and community ecology of insects and related invertebrates. Specific topics include insect size, scaling, and ecological consequences, the influence of biotic and abiotic factors on insect population and community dynamics, seasonal adaptations, dispersion, life table analysis, r- and k-selection, ecological methods, and insect-plant interactions. Case studies include examples based on the professional and research interests of students.

Course Goal:
The course goal is to give students a theoretical and working knowledge of the ecology of insects.

Course Genealogy:
The genealogy of this course and the principal characters go something like this: Dr. Pedigo (1966 – 2001) begat Dr. Higley (1989 – present), who begat Dr. Peterson (2002 – present). This course is ultimately derived from Dr. Larry Pedigo, Iowa State University Professor of Entomology (1966 – 2001). He taught insect ecology at ISU for many years. His course was modified by his former student, Dr. Leon Higley, University of Nebraska Professor of Entomology (1989 – present). Now, Dr. Higley’s course has been modified by his former student—that’s me—and offered at MSU.
Course Activities:
Lecture, discussion, literature readings, written assignments, exercises, and exams.

Learning Outcomes:
Students will be able to:
- Understand the differences between the ecology of vertebrates and invertebrates.
- Understand how abiotic environmental factors affect the physiological ecology of insects.
- Identify the major conceptual and practical approaches to characterizing the population ecology of insects.
- Identify the major conceptual and practical approaches to characterizing the community and ecosystem ecology of insects.
- Evaluate objectively the scientific weight of evidence for ecological issues related to insects.

Grading:
Exams: Coverage will include all lecture material presented before the exam. The final is not comprehensive. Exams format will be short answer and essay.
Class assignments: Several brief writing assignments and problem sets will be required.
Graduate Students: Those enrolled in ENTO 510 will be required to complete a term paper and present it to the class.

Points:
- Class assignments* 100
- Participation† 50
- Exams (3 exams, 100 pts/exam) 300
- Total 450

*Points for class assignments are tentative, but these will total no more than 200.
†Unexcused absences will result in a deduction of 10 points for each occurrence. Students are expected to participate in class in addition to merely attending class. Grades for participation will reflect the level of participation.

Letter grades will be assigned based on a scale no harsher than straight percentages of 100-90% “A” range, 89-80 “B” range, etc.; however, I reserve the right to use a more lenient grading scale.

Laptops, tablets, and smartphones: Students must turn phones off and put them away during class. Laptops and tablets may be used during class, but only for viewing materials related to the course.

From Conduct Guidelines and Grievance Procedures for Students (http://www2.montana.edu/policy/student_conduct/).

310.00 ACADEMIC EXPECTATIONS
Students must:
A. be prompt and regular in attending classes;
B. be well prepared for classes;
C. submit required assignments in a timely manner;
D. take exams when scheduled, unless rescheduled under 310.01;
E. act in a respectful manner toward other students and the instructor and in a way that does not detract from the learning experience; and
F. make and keep appointments when necessary to meet with the instructor. In addition to the above items, students are expected to meet any additional course and behavioral standards as defined by the instructor and listed in the syllabus.

310.01
A student officially representing MSU in athletic events, government, performance, or in similar official capacities, is entitled to the rescheduling of exams or important assignments due to required absences, only if a student has met the academic expectations outlined in section 310.00 of the Student Conduct Code. Students who do not meet the academic expectations, however, may not be entitled to special accommodations. Students are expected to provide course instructors with official notification of scheduled activity(ies) as early as possible, preferably at least ten (10) days in advance of the event.

Students participating in official MSU activities should not expect any special accommodation for attendance at regularly scheduled practice sessions or meetings (i.e., the routine activities required for performance, athletic pursuits, etc.).
<table>
<thead>
<tr>
<th>Month</th>
<th>Day</th>
<th>Topic</th>
<th>Readings and Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td></td>
<td>Introduction to Science, Insect Ecology, and Evolution</td>
<td>Read: Course Syllabus</td>
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<td></td>
<td>Lecture: What is Insect Ecology?</td>
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<td>Read Textbook, chapter 1 (pgs 3-23)</td>
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<td>Lecture: What is Science?</td>
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<td>View Video: The Baloney Detection Kit</td>
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<td>Insect Size and Ecological Implications</td>
<td>Lecture: Insect Size Background Reading (not required): Thompson (1942)</td>
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<td>Read: U. of Florida fact sheets on the largest insect, the longest insect, and the smallest insect</td>
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<td>Assignment 1 (biological size and movie inaccuracies)</td>
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<td>Creature Feature: The Beginning of the End</td>
<td>Watch movie in class</td>
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<td></td>
<td>Creature Feature: The Beginning of the End</td>
<td>Watch movie in class</td>
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<td>Temperature</td>
<td>Lecture: Temperature</td>
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<td>Read: U. of Florida fact sheets on the most heat tolerant insect and the most cold tolerant insect</td>
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<td>Assignment 2 (degree day problem set)</td>
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<td>Temperature; Water and Humidity</td>
<td>Discuss Lamb (1992) and Higley and Haskell (2009) in class</td>
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<td>Lecture: Water and Humidity</td>
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<td>Read: U. of Florida fact sheet on the most desiccation tolerant insect</td>
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<td>Dormancy and Diapause</td>
<td>Lecture: Dormancy and Diapause</td>
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<tr>
<td>Month</td>
<td>Topic</td>
<td>Readings</td>
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<tr>
<td>February</td>
<td>Migration</td>
<td>Read Textbook, pgs 29-33 Read Tauber et al. (1986)</td>
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<td>Lecture: Migration Read Showers et al. (1989) View NYT Video: monarch butterfly migration View Video: monarch butterfly—amazing migration</td>
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<td>Discuss Showers et al. (1989) in class</td>
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<tr>
<td>EXAM 1</td>
<td>EXAM 1</td>
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<td>Lecture: Introduction to Populations</td>
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<td>Assignment 3 (dispersion and density problem set)</td>
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<td></td>
<td>Intro to Populations; Dispersion</td>
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<td>Lecture: Density</td>
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<td>Density, Sampling</td>
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<td></td>
<td>Natality - Mating, Reproductive Strategies</td>
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<td>Discuss natality readings in class</td>
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<tr>
<td>NO CLASS</td>
<td>Spring Break</td>
<td></td>
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<tr>
<td></td>
<td>Biotic Potential</td>
<td>Lecture: Biotic Potential Resource for lecture: population growth spreadsheet</td>
<td></td>
</tr>
</tbody>
</table>
| Age Structure, Age Grading | Lecture: Age Structure  
Resources for lecture:  
PopulationPyramid.net |
|---------------------------|---------------------------------------------------------------------|
| Population Analysis       | Lecture: Population Analysis  
Read: Textbook, pgs 357-369  
Read: Peterson et al. (2009),  
Carey (2001) |
| Population Analysis       | Download: Multiple Decrement  
Life Table Program, M-DEC  
Assignment 5 (life table problem set) |
| Population Analysis       | Discuss readings and problem set |
| April                     | **EXAM 2** |
| Population Regulation     | Lecture: Population Regulation  
Read: Brook and Bradshaw (2006) |
| Insect-Plant Interactions | Lecture: Insect-Plant Interactions  
Read: Textbook, chapters 4, 6  
Read: Crawley (1989), Agrawal et al. (2012), Zust et al. (2012) |
| Insect-Plant Interactions | Discuss readings |
| Insect Community Ecology   | Lecture: Insect Community Ecology  
Read: Textbook, chapters 12, 14  
Read: Wikipedia entry on species diversity indices  
Read: Basset et al. (2012), Burkle et al. (2013) |
| Insect Community Ecology   | Discuss readings |
| Insects and Ecosystems     | Lecture: Insects and Ecosystems  
Read: Textbook, chapter 15  
Read: Uselman et al. (2011) |
| Applied Insect Ecology     | Lecture: The Ecological Underpinning of IPM  
| Applied Insect Ecology     | Discuss readings |
| Graduate Student Presentations | Graduate Student Presentations |
| May                       | **EXAM 3** |
SYLLABUS

TITLE: Insect Ecology (ENTO 510)

INSTRUCTOR: Bob Peterson
222 Linfield Hall
994-7927
bpeters@montana.edu

COURSE OFFICE HOURS: Immediately after class, or by appointment

CREDIT: 3 cr. (lecture)
TERM: Spring semester 2013
TIME: T Th, 10:50 - 12:05
LOCATION: Gaines Hall 144
COURSE WEB SITE: D2L


Description:
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Course Activities:
Lecture, discussion, literature readings, written assignments, exercises, and exams.

Learning Outcomes:
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- Evaluate objectively the scientific weight of evidence for ecological issues related to insects.

Grading:
Exams: Coverage will include all lecture material presented before the exam. The final is not comprehensive. Exams format will be short answer and essay.
Class assignments: Several brief writing assignments and problem sets will be required.
Graduate Students: Those enrolled in ENTO 510 will be required to complete a term paper and present it to the class.

Points:
<table>
<thead>
<tr>
<th>Category</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class assignments</td>
<td>100</td>
</tr>
<tr>
<td>Participation</td>
<td>50</td>
</tr>
<tr>
<td>Exams (3 exams, 100 pts/exam)</td>
<td>300</td>
</tr>
<tr>
<td>Total</td>
<td>450</td>
</tr>
</tbody>
</table>

*Points for class assignments are tentative, but these will total no more than 200.
†Unexcused absences will result in a deduction of 10 points for each occurrence. Students are expected to participate in class in addition to merely attending class. Grades for participation will reflect the level of participation.

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Laptops, tablets, and smartphones: Students must turn phones off and put them away during class. Laptops and tablets may be used during class, but only for viewing materials related to the course.

From Conduct Guidelines and Grievance Procedures for Students (http://www2.montana.edu/policy/student_conduct/).

310.00 ACADEMIC EXPECTATIONS
Students must:
A. be prompt and regular in attending classes;
B. be well prepared for classes;
C. submit required assignments in a timely manner;
D. take exams when scheduled, unless rescheduled under 310.01;
E. act in a respectful manner toward other students and the instructor and in a way that does not detract from the learning experience; and
F. make and keep appointments when necessary to meet with the instructor. In addition to the above items, students are expected to meet any additional course and behavioral standards as defined by the instructor and listed in the syllabus.

310.01
A student officially representing MSU in athletic events, government, performance, or in similar official capacities, is entitled to the rescheduling of exams or important assignments due to required absences, only if a student has met the academic expectations outlined in section 310.00 of the Student Conduct Code. Students who do not meet the academic expectations, however, may not be entitled to special accommodations. Students are expected to provide course instructors with official notification of scheduled activity(ies) as early as possible, preferably at least ten (10) days in advance of the event.

Students participating in official MSU activities should not expect any special accommodation for attendance at regularly scheduled practice sessions or meetings (i.e., the routine activities required for performance, athletic pursuits, etc.).
<table>
<thead>
<tr>
<th>Month</th>
<th>Day</th>
<th>Topic</th>
<th>Readings and Activities</th>
</tr>
</thead>
</table>
| January | | Introduction to Science, Insect Ecology, and Evolution | Read: Course Syllabus  
Lecture: What is Insect Ecology?  
Read Textbook, chapter 1 (pgs 3-23)  
Lecture: What is Science?  
View Video: The Baloney Detection Kit |
| | | Insect Size and Ecological Implications | Lecture: Insect Size  
Background Reading (not required): Thompson (1942)  
Read: U. of Florida fact sheets on the largest insect, the longest insect, and the smallest insect  
Assignment 1 (biological size and movie inaccuracies) |
| | | Creature Feature: The Beginning of the End | Watch movie in class |
| | | Creature Feature: The Beginning of the End | Watch movie in class |
| | | Temperature | Lecture: Temperature  
Read: U. of Florida fact sheets on the most heat tolerant insect and the most cold tolerant insect  
Assignment 2 (degree day problem set) |
| | | Temperature; Water and Humidity | Discuss Lamb (1992) and Higley and Haskell (2009) in class  
Lecture: Water and Humidity  
Read: U. of Florida fact sheet on the most desiccation tolerant insect |
<p>| | | Dormancy and Diapause | Lecture: Dormancy and Diapause |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Details</th>
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</table>
| February   | Migration                                  | Read Textbook, pgs 29-33
Read Tauber et al. (1986)
Lecture: Migration
Read Showers et al. (1989)
View NYT Video: monarch butterfly migration
View Video: monarch butterfly—amazing migration
Discuss Showers et al. (1989) in class |
| EXAM 1     | EXAM 1                                     | Lecture: Introduction to Populations
Lecture: Dispersion
Assignment 3 (dispersion and density problem set) |
|            | Intro to Populations; Dispersion           | Lecture: Density
Lecture: Sampling Programs
|            | Dispersion, Density, Sampling              | Natality - Mating, Reproductive Strategies
Lecture: Natality – Mating
Lecture: Natality – Reproduction
Read: U. of Florida fact sheets on the various insect records for mating and reproduction
Assignment 4 (essay on atypical mating or reproductive strategy)
Discuss natality readings in class |
| March      | Mortality                                  | Lecture: Mortality
Read: Textbook, chapters 7, 8
Read: Textbook, pgs 352-357
Read: Vandermeer and Goldberg (2003) |
| NO CLASS   | Spring Break                               | Lecture: Biotic Potential
Resource for lecture: population growth spreadsheet |
| Biotic     | Potential                                  |                                                                         |
| Age Structure, Age Grading | Lecture: Age Structure  
Resources for lecture:  
PopulationPyramid.net |
|---------------------------|--------------------------------------------------|
| Population Analysis      | Lecture: Population Analysis  
Read: Textbook, pgs 357-369  
Read: Peterson et al. (2009),  
Carey (2001) |
| Population Analysis      | Download: Multiple Decrement  
Life Table Program, M-DEC  
Assignment 5 (life table problem set) |
| Population Analysis      | Discuss readings and problem set |
| April                     | EXAM 2 |
| Population Regulation    | Lecture: Population Regulation  
Read: Brook and Bradshaw (2006) |
| Insect-Plant Interactions| Lecture: Insect-Plant Interactions  
Read: Textbook, chapters 4, 6  
Read: Crawley (1989), Agrawal et al. (2012), Zust et al. (2012) |
| Insect-Plant Interactions| Discuss readings |
| Insect Community Ecology  | Lecture: Insect Community Ecology  
Read: Textbook, chapters 12, 14  
Read: Wikipedia entry on species diversity indices  
Read: Basset et al. (2012), Burkle et al. (2013) |
| Insect Community Ecology  | Discuss readings |
| Insects and Ecosystems    | Lecture: Insects and Ecosystems  
Read: Textbook, chapter 15  
Read: Uselman et al. (2011) |
| Applied Insect Ecology    | Lecture: The Ecological Underpinning of IPM  
| Applied Insect Ecology    | Discuss readings |
| Graduate Student Presentations | Graduate Student Presentations |
| May                       | EXAM 3 |